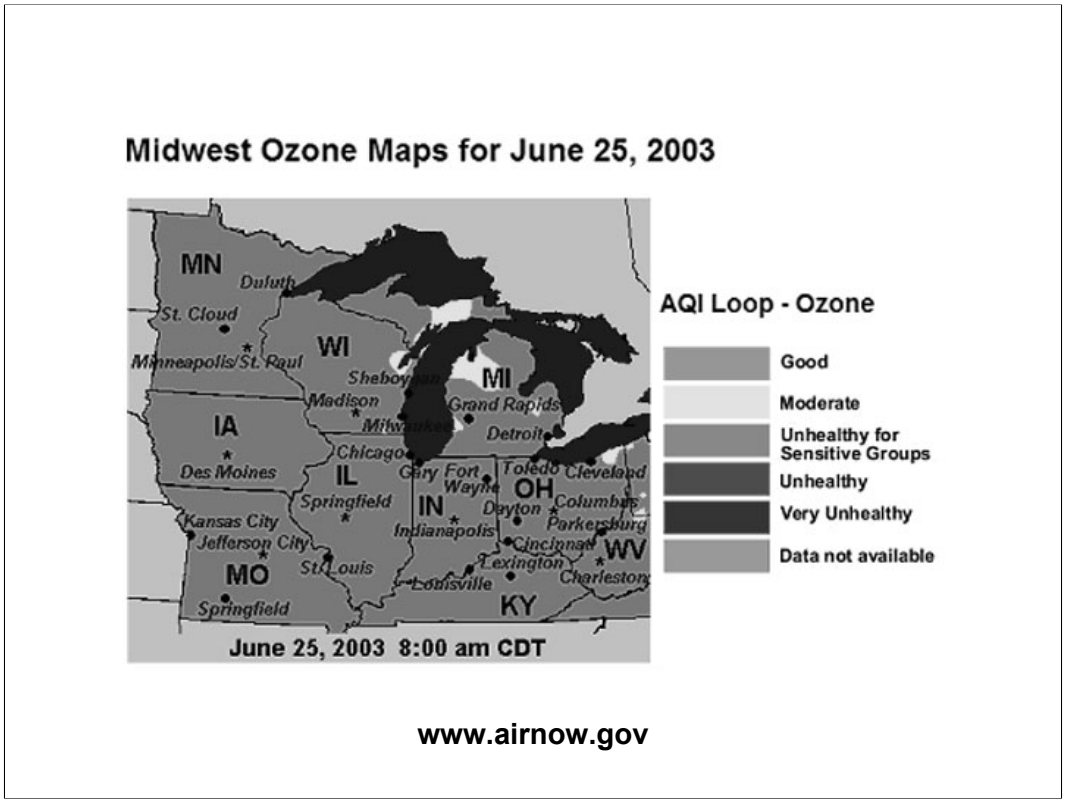
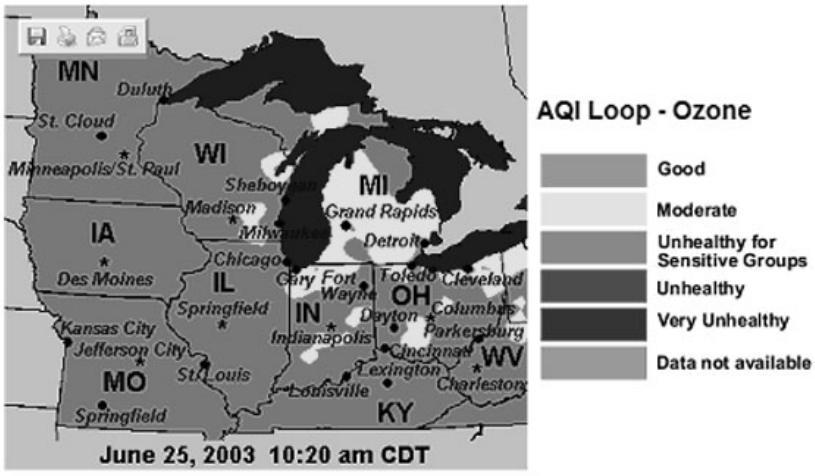


- Here is an example of the type of maps and health messages you can get from the Air Quality Index on the AirNow Web site.
- Let's take a look at one of these maps and see what it tells us about ozone levels.
- This map shows the air quality in the Midwest at at 8:00 a.m. on June 25, 2003.
- The color scale to the right of the map is the Air Quality Index, or AQI, which is an index for reporting daily air quality.
- It tells us how clean or polluted the air is and whether there are any health concerns.
- What is this map telling us about the air quality in the Midwest on this day at 8:00 a.m.? [*Wait for response.*]
- The map is mostly green, so it's telling us that the air quality is mostly "good" all over this area of the Midwest.
- Let's go forward in time on that same day and see whether the air quality changed.

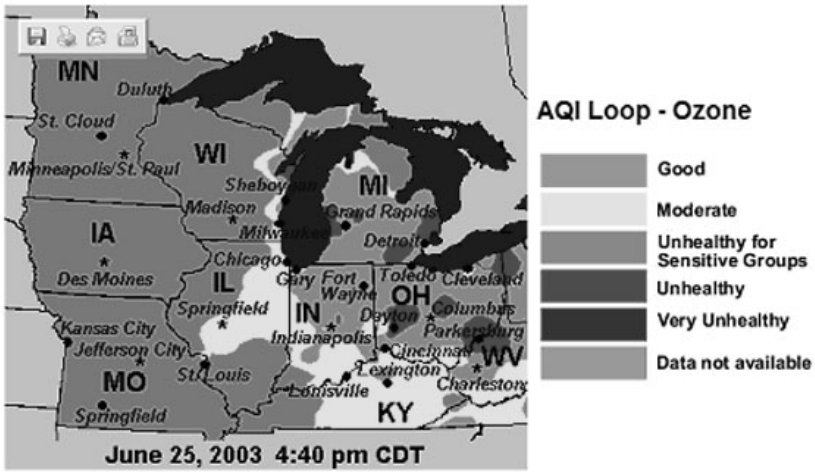
Midwest Ozone Maps for June 25, 2003



www.airnow.gov

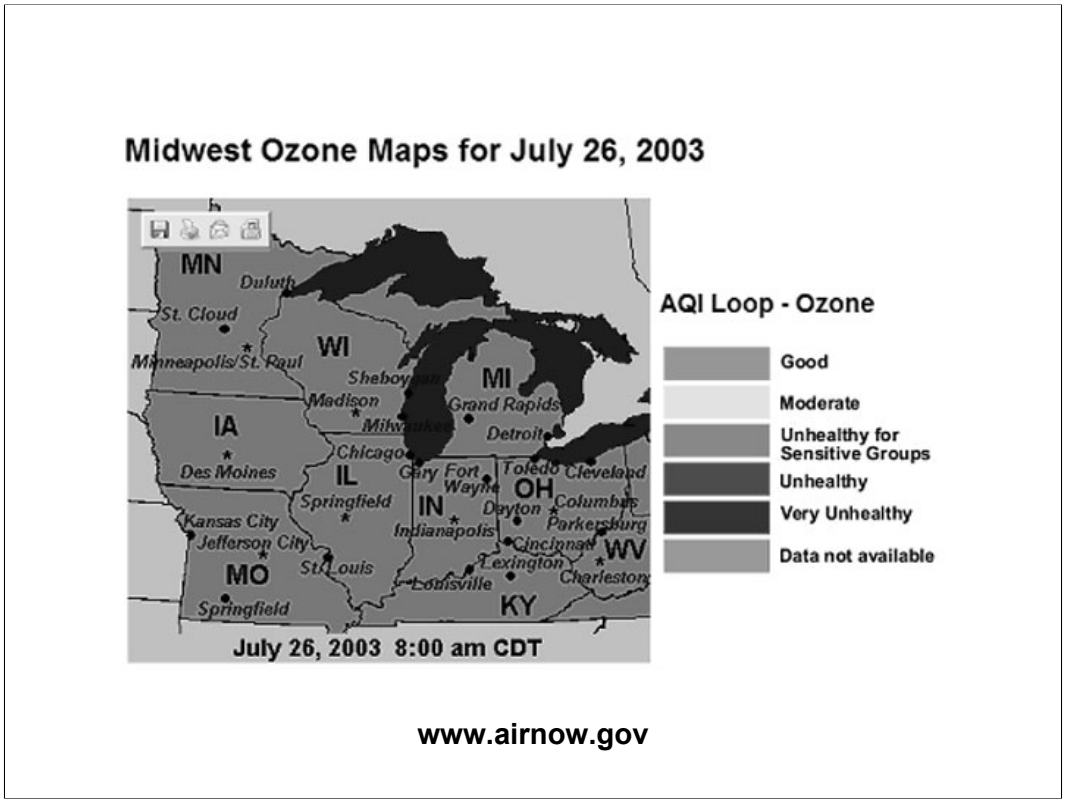
- On this map, it's now 10:20 a.m. on the same day in the Midwest. What's happening to the air quality in this area? *[Point to yellow area] [Wait for a response]*
- It's getting worse. The color is yellow, so the AQI is telling us that the air quality is "moderate," which means just a little polluted—a level that only unusually sensitive people need to be concerned about.
- Let's look at the air quality a few hours later.

Midwest Ozone Maps for June 25, 2003



www.airnow.gov

- Now it's 4:40 p.m. on the same day. What is the air quality in these parts of the Midwest? *[Point to an orange area, then a red area.] [Wait for responses]*
- For orange, it's "unhealthy for sensitive groups" which, for ozone, are people with lung disease, and active adults and children. For red, it's "unhealthy" - everyone should limit prolonged or heavy outdoor exertion.
- Now let's look at the map the next morning.



- The map is green again, showing us that the air quality is much better.
- Let's review what we saw about ozone levels on the Midwest maps: The air quality was good in the morning, it got worse in the afternoon and evening, and then it got better during the night.
- This is very typical for ozone pollution. Ozone is worse in warmer temperatures and often worse in the afternoon and early evening.
- This is because ozone needs warmth and sunlight to form.
- Also, increased traffic during the late afternoons and evenings can contribute to more ozone formation.

- If you have access to the Internet, you can visit the AIRNow website whenever you want to check the air quality and get air quality forecasts for your area, just like checking the weather.
- Or check your newspaper or listen to your local TV or radio station, which may include the AQI in their weather report.
- The AIRNow site also gives you specific health messages about how to protect your health when the air is polluted at the different AQI levels.
- *[Add local station information here, if applicable]*

- If you find out that the air is polluted, here are some things you can do to protect your health.
- Exercise is important to staying healthy, so it's important not to use air pollution as an excuse to avoid exercise!
- But when the air is polluted, it's a good idea to take it easier when you're active outside.
- That might mean, for example, walking instead of jogging, or exercising for half your normal time.
- That's because when we're taking it easier, we don't breathe in as much polluted air.

- Here's another thing you can do.
- You can reduce your exposure to polluted air by changing when or where you exercise.
- For example, when ozone is at unhealthy levels in the air, you can plan outdoor activities when ozone levels are lower, usually in the morning or evening.
- When particle pollution is in the air, you can plan outdoor activities when particle levels are lower. This can vary from place to place, so check AIRNow.
- To reduce your exposure to particle pollution, try to exercise away from busy roadways.

- Here's a fourth thing: Pay attention to your body.
- If the air is polluted and you notice any symptoms like unusual coughing, pain when you take a deep breath, chest tightness, or wheezing, stop your activity and instead choose a less strenuous activity.
- This is especially important if you are a member of a sensitive group—for example, if you have asthma or lung disease.
- If you have lung disease and notice these symptoms when the air is polluted, check with your doctor about what to do.
- If you have heart disease, check with your doctor before engaging in vigorous outdoor activities when particle pollution levels are high.
- If you have heart disease and notice symptoms, follow your doctor's advice.

- In addition to protecting yourself from pollution, you can also take steps to help prevent pollution.
- These steps include:
  - < When possible, reduce how much you drive by walking, biking, carpooling, or taking public transportation.
  - < Turn off lights and other appliances when you don't need them.
  - < Cut back on heating and cooling when you can.
  - < Insulate your home and run full loads in your appliances (washing machine, dishwasher, etc.) so you're only using the energy you really need.
  - < And, when purchasing a product that uses energy, whether a vehicle or an appliance, look for one that uses energy efficiently. For instance, look for the EnergySTAR label.

- Thank you. I hope you found this information useful.
- Here is a handout with more information about the AQI, and about air quality and your health.
- *[Pass out handout]*

Short version:
Civic Groups presentation

Short Version: Civic Groups Presentation

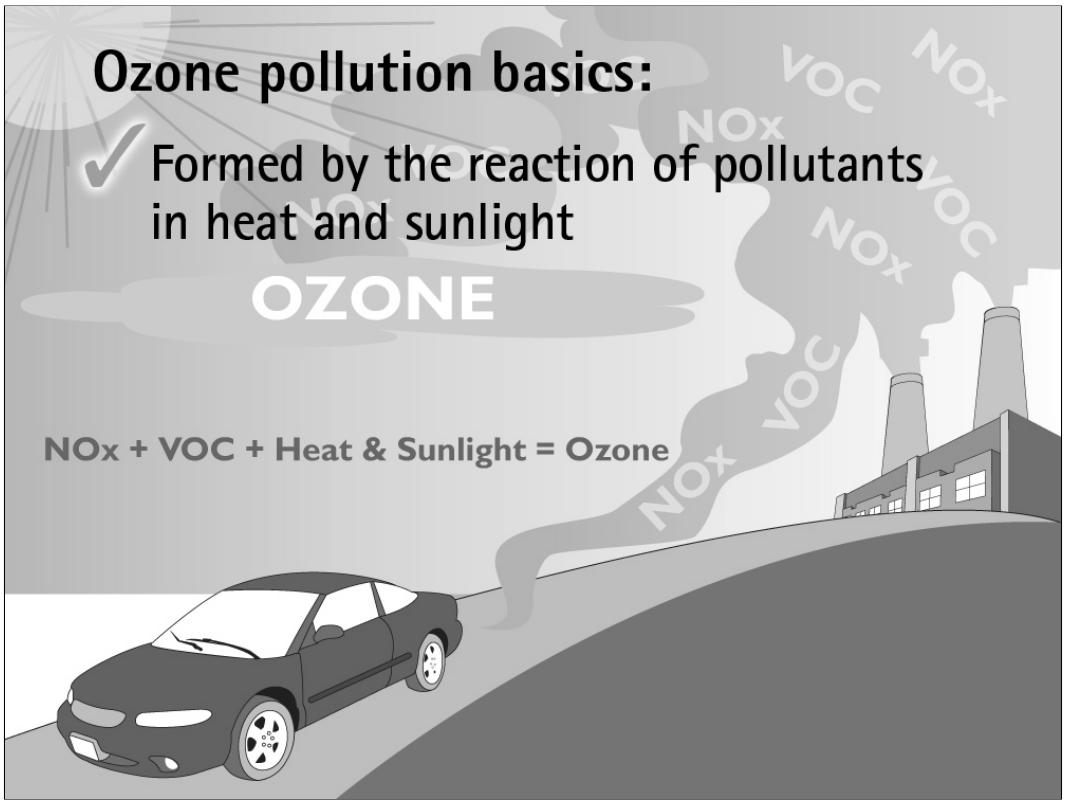
This presentation is an abbreviated version of the longer presentation for Civic Groups provided earlier in this toolkit. A longer and more detailed presentation than those for school-aged children is appropriate for civic/adult groups; however if time is limited, you can use this shorter version. The long version contains 33 slides; this short version includes 15 slides. The *Key Messages*, *Handout*, and *Optional Activity* provided for Civic Groups are relevant for both the short and long versions.

Notes Pages: Civic Groups Short version

- I'd like to talk about air pollution and your health, and how weather can affect air pollution. Breathing polluted air is unhealthy, but you can't always tell the air is polluted by how it looks, like you can in these pictures.
- Air pollution can have a number of health effects, some of which can be quite serious.

- The Air Quality Index, or AQI, can help you find out when pollution levels are high and could contribute to health problems. The AQI also provides related health messages.
- The AQI uses color-coding to represent air quality ranging from good (green) to purple (very unhealthy).
- You can find the AQI on the Internet at EPA's AIRNow website at: www.airnow.gov. Also, many local newspapers and TV and radio stations include the AQI as part of the weather report.

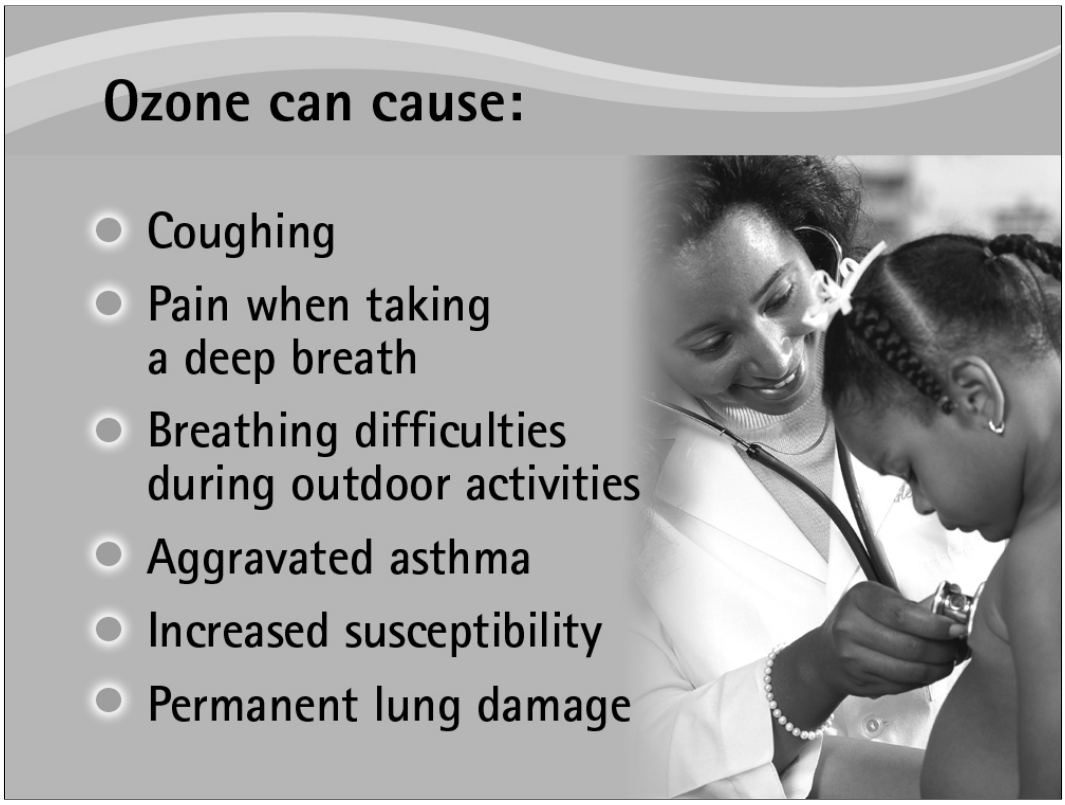
- Air pollution comes from a number of different sources.
- Vehicles, power plants, and chemical plants are some of the biggest pollution sources. Some things in nature, like forest fires or volcanoes, also can cause air pollution.



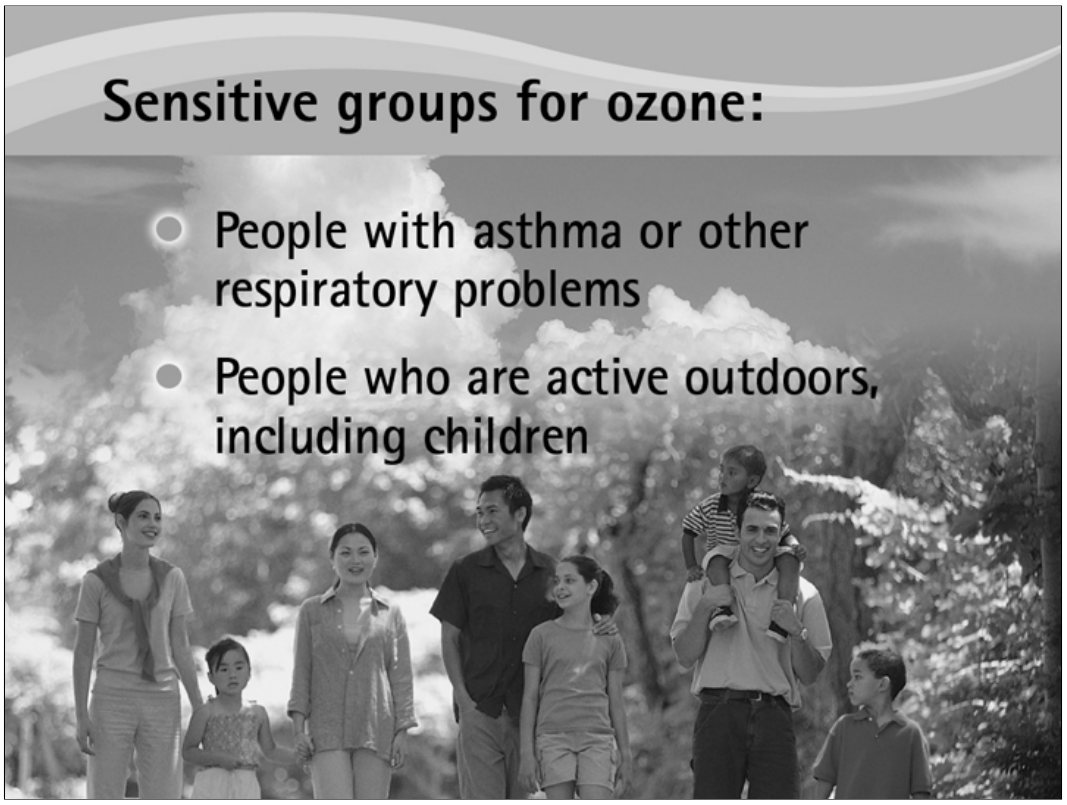
- I'm going to talk about two types of air pollutants today: ozone pollution and particle pollution.
- Ozone pollution is formed when pollutants called nitrogen oxides and volatile organic compounds, or VOCs, react in the presence of heat and sunlight. This is one way that weather affects air pollution.
- Vehicle exhaust, industrial emissions, gasoline vapors, and chemical solvents are some of the major sources of NOx and VOCs.
- Weather can also affect air pollution in other ways. For example, the wind can move air pollution around, blowing it away from its source, into areas hundreds of miles away, where it can have a significant impact on air pollution levels.

- Ozone in the air we breathe here at ground level is bad.
- But very high up in the atmosphere, there's a natural layer of ozone that protects us from getting too much of the sun's harmful ultraviolet radiation.

- Because heat and sunlight are needed to form ground-level ozone, ozone levels are a concern in warmer months.
- This is another way in which weather influences air pollution.
- In fact, the length of the ozone season varies depending on the weather. Southern and southwestern states may have an ozone season that lasts nearly the entire year. For more northern states, the ozone season generally is limited to summertime.

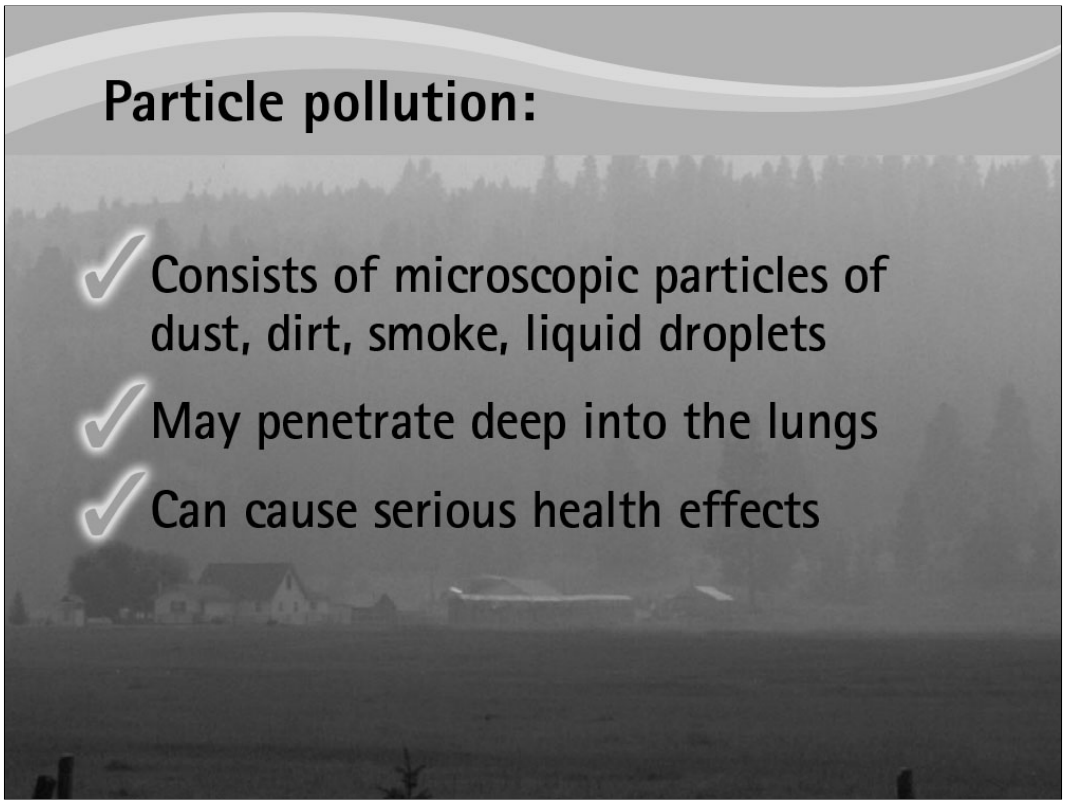


- Ozone can trigger a variety of health problems, including aggravated asthma and increased susceptibility to respiratory illnesses like pneumonia and bronchitis.
- Symptoms to watch for when ozone is at unhealthy levels in the air include: coughing, pain when taking a deep breath, and breathing difficulties, especially when you are active or exercising outdoors.
- But health damage from ozone can also occur without any noticeable signs. Repeated exposures to ozone can change the structure of the lungs, leading to premature aging of the lungs.

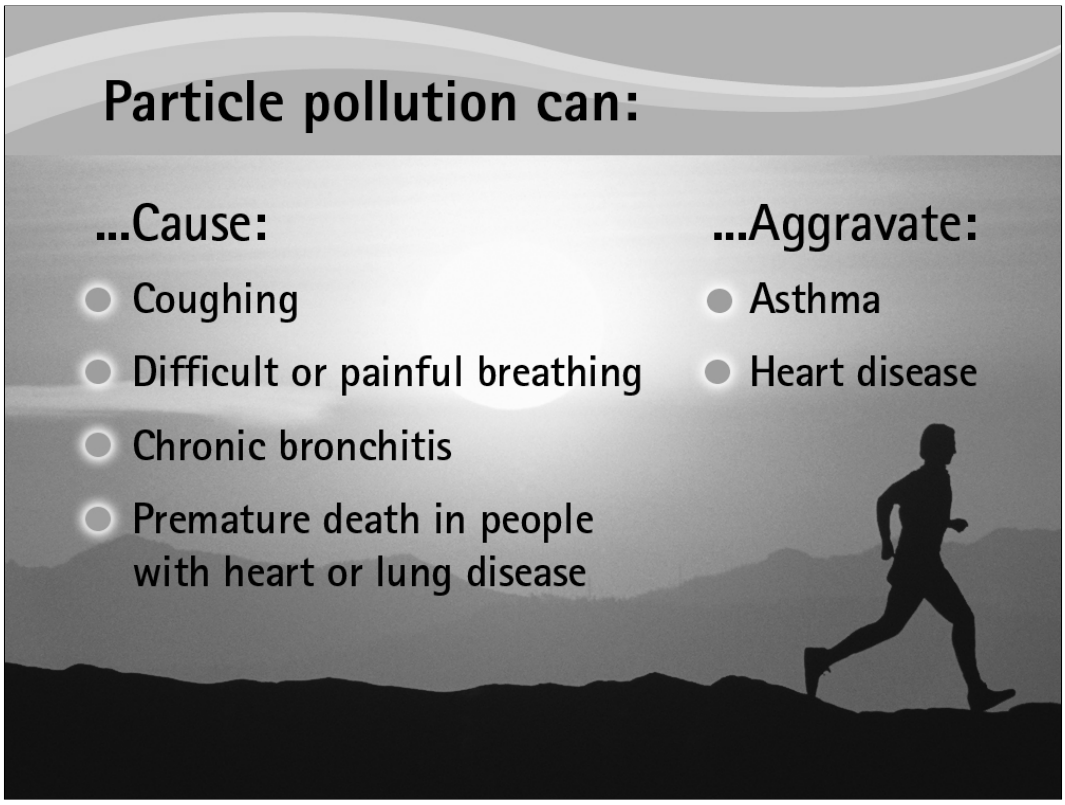


- Some people are more sensitive to ozone than others.
- Scientists estimate that about one in three people in the United States is at higher risk for experiencing ozone-related health effects.

- Another key air pollutant that can affect people's health is called particle pollution.
- Particle pollution is formed directly from sources such as vehicles, factories, power plants, and smoke from forest fires.
- Particle pollution can be higher near busy roads and factories.
- Particle pollution is also formed indirectly, for example, by weather-related conditions or events. Particle pollution can occur at any time of year, but it can be especially bad during winter, when the weather is calm, allowing particle pollution to build up often due to high pressure systems and stagnant conditions. In a high pressure system, the air is stagnant, which keeps pollutants where they are.
- Also during thunderstorms, the fast-moving air disperses particle pollution, and the rain cleanses the air.



- Particle pollution consists of tiny, microscopic particles of dust, dirt, smoke, and liquid droplets containing any number of chemicals.
- This photo shows particle pollution from Montana forest fires in the year 2000 in the Bitterroot Valley. This was actually a day of light smoke during the fires.
- The smaller particles are the greatest health concern because they can penetrate deep into your lungs and may even get into your bloodstream.



- You can see that particle pollution causes quite a range of health effects, from coughing and chronic bronchitis to aggravated asthma and heart disease, and even premature death in people with heart or lung disease.
- Many studies link particle pollution levels with increased hospital admissions and emergency room visits.

- As with ground-level ozone, some people are considered to be at greater risk from particles than others.
- People with heart or lung disease are at risk because particle pollution can aggravate these diseases.
- Many studies show that when particle levels are high, older adults are more likely to be hospitalized, and some may die of aggravated heart or lung disease.
- Children are at risk because their lungs are still developing, they breathe more air per pound of body weight, and they are usually very active.

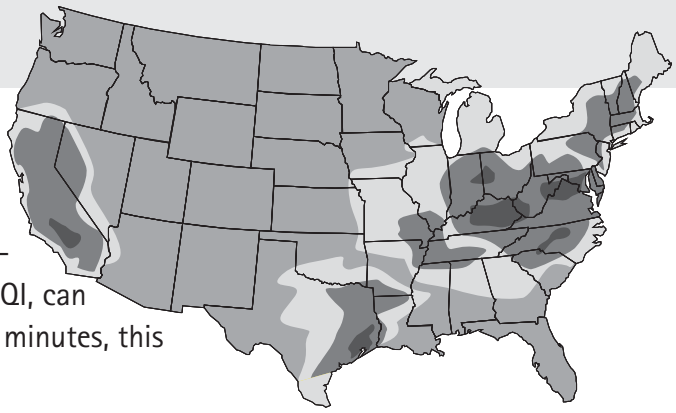
- Visit the AIRNow website to check the air quality and get air quality forecasts for your area, just like checking the weather. Or check your newspaper or listen to your local TV or radio weather report, which may include the AQI. *[Add local station information here, if applicable.]*
- Exercise is important to staying healthy, so it's important not to use air pollution as an excuse to avoid exercise! But when the air is polluted, it's a good idea to take it easier when you're active outside. That might mean, for example, walking instead of jogging, or exercising for half your normal time.
- You can reduce your exposure to polluted air by changing when or where you exercise. For example, when ozone is at unhealthy levels in the air, plan outdoor activities for times when ozone levels are lower, usually in the morning or evening.
- When particle pollution is at high levels in the air, plan outdoor activities for times when particle levels are lower. This can vary from place to place, so check the Air Quality Index. To reduce your exposure to particle pollution, try to exercise away from busy roadways.
- Pay attention to your body. If the air is polluted and you notice symptoms like coughing, pain when you take a deep breath, chest tightness, or wheezing, stop what you're doing and find another, less intense activity. This is especially important if you are a member of a sensitive group—for example, if you have asthma or lung disease.
- If you have lung disease and notice these symptoms when the air is polluted, check with your doctor about what to do.
- If you have heart disease, check with your doctor before engaging in vigorous outdoor activities when particle pollution levels are high. If you have heart disease and notice symptoms, follow your doctor's advice.

- In addition to protecting yourself from pollution, you can also take steps to help prevent pollution.
- These steps include:
  - < When possible, reduce how much you drive by walking, biking, carpooling, or taking public transportation.
  - < Turn off lights and other appliances when you don't need them.
  - < Cut back on heating and cooling when you can.
  - < Insulate your home and run full loads in your appliances (washing machine, dishwasher, etc.) so you're only using the energy you really need.
  - < And, when purchasing a product that uses energy, whether a vehicle or an appliance, look for one that uses energy efficiently. For instance, look for the EnergySTAR label.

- Thank you. I hope you found this information useful.
- Here is a handout with more information about the AQI, and about air quality and your health.
- *[Pass out handout]*

Handout for Civic Groups/Adults

The AQI: Your Forecast to Breathe By



You probably check your local weather forecast every day, but there's another forecast out there you should be checking, too. This forecast, known as the Air Quality Index, or AQI, can help you plan your activities to protect your health. In just minutes, this important tool lets you know:

- What today's and tomorrow's air pollution levels are forecast to be in your community.
- Who's at risk from air pollution.
- Simple steps you can take to protect your health.

How can air pollution affect my health?

- About 160 million Americans—over half the U.S. population—are exposed to unhealthy levels of ground-level ozone or particle pollution every year.
- Breathing ground-level ozone and particle pollution can cause serious health effects. Ozone pollution can cause respiratory symptoms and premature aging of the lungs. Particle pollution can cause bronchitis, heart problems, and even premature death due to heart or lung disease. Both ozone and particle pollution can aggravate asthma.
- Some people are at greater risk from breathing ozone pollution or particle pollution. Sensitive groups for ozone pollution include active children and adults, and people with lung disease. Sensitive groups for particle pollution include people with heart or lung disease, older adults, and children.

What can I do to protect my health?

- You can reduce your exposure to air pollution by using AQI forecasts to plan your day. When the AQI predicts unhealthy air pollution levels, take it easier. By doing so, you will take less polluted air into your lungs. Choose a less vigorous activity (walk instead of jog, for example) or spend less time doing it. Or, reschedule your activities for times when air quality is expected to be better.

AQI AIR QUALITY INDEX

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Where can I find air quality information for my community?

- You can find daily air quality information and forecasts for ozone and particle pollution on the Internet at the AIRNow web site (www.airnow.gov). This site also provides links to state and local air pollution agency web sites and air quality e-alerts.
- In many communities, you can also get air quality information on the television and radio, in your local newspaper, and on state and local telephone hotlines.

How does the Air Quality Index (AQI) work?

The AQI is a simple, color-coded scale that tells you how clean or polluted your air is and how you can protect your health. Air quality forecasts use these color codes to help you quickly identify how polluted the air is.

When the AQI is . . .	. . . air quality conditions are:
Green	**Good**
Yellow	**Moderate**
Orange	**Unhealthy for Sensitive Groups**
Red	**Unhealthy**
Purple	**Very Unhealthy**

Where can I get more information?

Visit AIRNow (www.airnow.gov) for air quality information and forecasts for more than 300 cities across the U.S., links to state and local air quality web sites, and real-time air quality maps and visibility via webcams.

Visit www.airnow.gov (click on "Publications" on the left side of the web page) for free U.S. EPA publications:

- *Air Quality Index—A Guide to Air Quality and Your Health*
- *Air Quality Guide for Ozone*
- *Air Quality Guide for Particle Pollution*
- *Particle Pollution and Your Health*
- *Ozone and Your Health*
- *Smog—Who Does it Hurt?*
- *Summertime Safety: Keeping Kids Safe from Sun and Smog*

Optional Additional Activity for Civic Groups: *Jeopardy Game*

Jeopardy Game

(followup to slide presentation if time allows)

- Now let's play "Jeopardy" for a couple of minutes to review some of the key points about air quality. Following the typical Jeopardy format, I will give you the "answers." Raise your hand if you have a question that corresponds to that answer. The only rule is that the question has to have something to do with air quality or air pollution.

[Note: Examples of questions are given below. The actual wording of the responses from audience members will vary. If someone gives a wrong response, ask for another response until you have a correct response from an audience member.]

- Here's the first answer: "AIRNow." Who's got a question for it?

- *[Take response(s). Example response: What is the name of EPA's web site that provides daily air quality information and forecasts?]*

- Here's the second answer: "Sensitive groups." Who's got a question for it?

- *[Take response(s). Example responses: What are people with asthma, heart disease, or lung disease; children; and/or older adults called with respect to air pollution? What is the term for people who are more sensitive to air pollution?]*

- Here's the third answer: "Take it easier when you're active outside." Who's got a question for it?

- *[Take response(s). Example response: What is a good thing to do when air pollution levels are elevated?]*

- Here's the fourth answer: "Ozone." Let's see if we can come up with several questions for this one.

- *[Take several responses if possible. Example responses: What pollutant can't be seen in air? What pollutant can harm health even at low levels and even after exposure has ended? What pollutant is formed by the reaction of VOCs and nitrogen oxides in sunlight and heat? What pollutant is worse in warm months?]*

- And the final answer is" "Green."

- *[Take response(s). Example response: What AQI color means the air is healthy?]*